



March 1, 2006

178232  
Patricia Banks Morrison  
Senior Counsel

tmorrison@scana.com

**Via Electronic Mail and Hand Delivery**

The Honorable Charles L.A. Terreni  
Chief Clerk & Administrator  
Public Service Commission of South Carolina  
ATTN: Docketing Department  
101 Executive Center Drive  
Columbia, South Carolina 29210

Re: 2006 SCE&G Fuel Hearing  
Docket No. 2006-2-E

Dear Mr. Terreni:

Please find enclosed for filing the original and twenty-five copies of South Carolina Electric & Gas Company's Direct Testimony of the following witnesses:

1. Gene G. Soult; ✓
2. Rose M. Jackson; ✓
3. Gerhard Haimberger; ✓
4. Jeffrey B. Archie; ✓
5. Joseph M. Lynch; and ✓
6. John R. Hendrix. ✓

By copy of this letter, I am serving this testimony on all parties of record.

Please return a stamped copy of this letter with our courier. Thank you for your kind assistance in this matter.

With kind regards,

Patricia Banks Morrison

PBM/kms  
Enclosures

cc: Shannon Bowyer Hudson  
E. Wade Mullins III  
Scott Elliott

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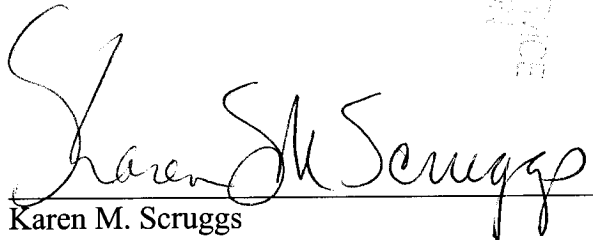
RETURN DATE: 02.04.06  
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CERTIFICATE OF SERVICE VIA MAIL

I hereby certify that on March 1, 2006, a copy of South Carolina Electric & Gas Company's DIRECT TESTIMONY OF JOHN R. HENDRIX, ROSE M. JACKSON, JOSEPH M. LYNCH, JEFFREY B. ARCHIE, GENE G. SOULT, AND GERHARD HAIMBERGER was served on the parties listed below at the addresses indicated by depositing a true copy thereof in the United States Mail at Columbia, South Carolina, in an envelope with adequate first-class postage duly affixed and a return address clearly indicated thereon and addressed to:

E. Wade Mullins III  
Bruner Power Robbins Wall & Mullins LLC  
PO Box 61110  
Columbia, SC 29260

Scott Elliott  
Elliott & Elliott  
721 Olive Street  
Columbia, SC 29205

  
Karen M. Scruggs

Re: 2006 SCE&G Fuel Hearing  
Docket #2006-2-E

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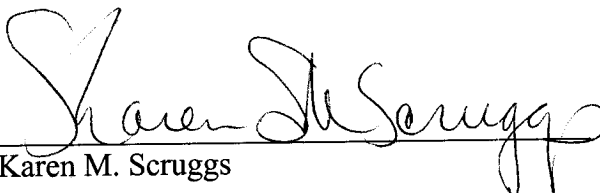
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CERTIFICATE OF SERVICE VIA HAND DELIVERY

I hereby certify that on March 1, 2006, a copy of South Carolina Electric & Gas Company's DIRECT TESTIMONY OF JOHN R. HENDRIX, ROSE M. JACKSON, JOSEPH M. LYNCH, JEFFREY B. ARCHIE, GENE G. SOULT, AND GERHARD HAIMBERGER was served on the party listed below at the address:

Shannon Bowyer Hudson  
Office of Regulatory Staff  
1441 Main Street, Suite 300  
Columbia, S.C. 29201

  
Karen M. Scruggs

Re: 2006 SCE&G Fuel Hearing  
Docket #2006-2-E

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**DIRECT TESTIMONY**

**OF**

**ROSE JACKSON**

**ON BEHALF OF**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY**

**DOCKET NO. 2006-2-E**

**Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

A. My name is Rose Jackson, and my business address is 1426 Main Street, 15<sup>th</sup> Floor, Columbia, South Carolina.

**Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT POSITION?**

A. I am employed by SCANA Services, Inc. as General Manager-Gas Supply and Capacity Management.

**Q. PLEASE DESCRIBE YOUR DUTIES IN YOUR CURRENT POSITION?**

A. In regard to this docket, I am responsible for gas supply, capacity and purchasing functions for South Carolina Electric and Gas ("SCE&G") for the operations of the generating facilities located at Urquhart and gas supply, capacity and purchasing functions for SCANA Energy Marketing, Inc. ("SEMI") which supplies gas to the Jasper facility under a long-term contract. These responsibilities include procurement of gas supply and capacity, nominations and scheduling, gas accounting, state and federal regulatory issues related to supply and capacity, structured marketing and asset management.

1 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND WORK**  
2 **EXPERIENCE?**

3 A. I graduated from the University of South Carolina in 1988 with a Bachelor of  
4 Science degree in Accounting. Following graduation, I worked for approximately three  
5 (3) years as an accountant for a national securities services firm. In 1992, I began my  
6 employment with SCANA Corporation as an Accountant working directly for SCANA  
7 Energy Marketing, Inc. Over the years, I have held varying positions of increasing  
8 responsibility including Energy Services Coordinator, where I was responsible for  
9 scheduling gas for the Atlanta Gas Light System; project manager for the implementation  
10 of an automated gas management system; and manager of operations. In 1998, I became  
11 responsible for gas procurement, interstate pipeline and local distribution company  
12 ("LDC") scheduling and preparation of gas accounting information. In May 2002 I  
13 became manager of operations and gas accounting with SCANA Services where I was  
14 responsible for gas scheduling on interstate pipelines and gas accounting for all  
15 subsidiaries of SCANA Corporation. In November 2003 I became Fuels Planning  
16 Manager where I assisted all of SCANA Corp. subsidiaries with strategic planning and  
17 special projects associated with natural gas. I held this position until promoted to my  
18 current position in December 2005.

19 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE ANY REGULATORY**  
20 **COMMISSION?**

21 A. Yes, I have prefiled testimony with this Commission and I have testified before  
22 the Georgia Public Service Commission on several occasions, providing testimony on  
23 diverse issues such as gas supply, operational and gas accounting.

1   **Q.     WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?**

2   A.           I will explain how my department, Gas Supply and Capacity Management,  
3               purchases natural gas to supply SCE&G's generation needs and how it interacts with  
4               SCE&G's Economic Resource Commitment Group.

5   **Q.     PLEASE PROVIDE AN OVERVIEW OF HOW YOUR DEPARTMENT MAKES**  
6   **PURCHASING DECISIONS.**

7   A.           The gas purchases made by the Gas Supply and Capacity Management  
8               Department are driven by the needs of the electric generation group. Part of what we  
9               supply the Economic Resource Commitment Group is current market information that  
10              can be used in running resource commitment models for our electric generation plants.  
11              SCE&G's Economic Resource Commitment Group requests gas price quotes and market  
12              information from my department on a continual basis. This group uses current gas prices  
13              as inputs into their dispatch models to determine the most economic means of supplying  
14              electric needs, either through internal generation or off-system purchases.

15              The actual gas purchasing decisions are driven by the unit commitment decisions  
16              made by the Economic Resource Commitment Group. In some cases, events occur that  
17              create the need to bring a gas fired unit on line immediately. The kinds of events that  
18              may cause this immediate need are the loss of a purchased power supply from the market  
19              or the forced outage of a large unit on our system or a neighboring system. These events  
20              may require the Economic Resource Commitment Group to direct us to poll the market to  
21              determine gas supply prices immediately. If the Economic Resource Commitment Group  
22              determines it is necessary to bring a gas fired unit on line, we then lock in a supply of  
23              natural gas at that time.

1 Ordinarily, however, gas purchasing decisions are driven by unit commitment  
2 decisions made daily by the Economic Resource Commitment Group. These decisions  
3 are based on weather forecasts, load forecasts, purchased power prices, and unit  
4 availability information for that day. There is an obvious need to make these decisions  
5 with the most current and definitive information available. As a result, unit commitment  
6 decisions for the day are generally made in the early morning each day when weather  
7 patterns, plant availability information and electric market prices are relatively well  
8 established. The timing of these electric unit commitment decisions determines when  
9 and how gas is purchased to supply generation in most cases.

10 Once the decision is made that supplying Jasper and/or Urquhart with natural gas  
11 is the economical choice for providing reliable power to our customers, my department is  
12 directed to purchase gas supplies for delivery for a stated term at current market prices.

13 **Q. ARE YOUR CONTRACTS TO PURCHASE GAS NORMALLY SHORT-TERM**  
14 **OR LONG-TERM?**

15 A. We have standing industry standard contracts with a group of suppliers that set  
16 forth many of the terms and conditions of delivery. Price and quantity, however, are  
17 determined at the time of purchase because the purchase of gas supplies for electric  
18 generation is generally made within hours of the need to burn the gas to generate  
19 electricity. The purchase is a short-term transaction that must be completed using current  
20 pricing for natural gas in the market.

21 The most common prices quoted for daily gas deliveries is the day ahead gas  
22 price. The Gas Daily Average or GDA, for example, is an average of these day ahead  
23 prices, reported on a historical basis the next business day.

1           The day ahead gas market, however, closes at mid-day of the day before the gas is  
2 delivered and so GDA prices are not available for some electric supply purchases since  
3 unit commitment decisions are not made until the next morning. Instead, the gas we  
4 purchase for electric generation is frequently made in the intraday market.

5   **Q.   WHAT TOOLS DO YOU USE TO INFORM YOUR PURCHASING DECISIONS?**

6   A.           The most important tools that we use are my department's collective experience  
7 in national natural gas markets, careful observation and evaluation of movements in  
8 market-based prices, and continual surveys of our long-time suppliers for pricing  
9 information. These tools are by far the most important and most accurate in assisting us  
10 to determine market-based prices for natural gas supplies being purchased on the "spot  
11 market."

12           Another tool used in the industry is a publication known as *Platt's Gas Daily*.  
13 This publication is a historic publication providing highs, lows, and averages for daily  
14 prices based upon surveys conducted by the publisher, the McGraw-Hill Company, of  
15 marketers, producers, suppliers, and purchasers. As the name implies, this publication is  
16 received daily and provides information about the previous day's day ahead prices and  
17 volumes at various production points and transportation zones.

18           In addition, we also use the Intercontinental Exchange ("ICE"), to inform our  
19 purchasing decisions, which is a real time electronic trading board. The shortcoming of  
20 the ICE and *Gas Daily* is that not all trades are reflected in these services.

21   **Q.   HOW DO GAS DAILY AND ICE COMPARE WITH THE NEW YORK**  
22 **MERCHANTILE EXCHANGE ("NYMEX")?**

1 A. The services provide entirely different information. NYMEX is a financial  
2 market, which captures realtime trading data and information about the projected price of  
3 natural gas and other commodities at various times in the future, such as, one month,  
4 three months, six months, a year or longer. Because my department enters the market to  
5 buy the physical commodity and not financial instruments and because we typically buy  
6 natural gas for shorter periods, the NYMEX market is primarily of use to us to observe  
7 projected trends over the ensuing month or months and does not otherwise influence our  
8 purchasing decisions.

9 **Q. DOES NYMEX PRICING EVER ENTER INTO YOUR DECISION PATH FOR**  
10 **PURCHASING NATURAL GAS FOR EITHER THE URQUHART COMBINED**  
11 **CYCLE UNITS OR THE JASPER FACILITY?**

12 A. We use NYMEX pricing data infrequently for calculating a benchmark relative to  
13 gas supply from third party storage to either Urquhart or Jasper. Since these units are  
14 intermediate turbines, the Economic Resource Commitment Group decides whether to  
15 operate these facilities based upon the daily demands of SCE&G's customers and its  
16 system. Consequently, most of the gas purchasing decisions for these plants are short-  
17 term, that is, for a day at a time or across a weekend or holiday period.

18 **Q. WHAT TRANSPORTATION CAPACITY DOES SCE&G HAVE FOR THE**  
19 **URQUHART COMBINED CYCLE UNITS AND THE JASPER FACILITY?**

20 A. SCE&G has a long-term capacity contract with Southern Natural Gas Company  
21 for firm transportation service of 51,050 dekatherms per day to serve Urquhart. My  
22 department, as requested by the Economic Resource Commitment Group, procures the  
23 natural gas needed to operate Urquhart. We have in excess of 20 different suppliers that

1 we survey at various times to secure our gas supplies at market-based rates and from  
2 entities that have proven themselves to be creditworthy and reliable.

3 For Jasper, SCE&G has contracted with SCANA Energy Marketing, Inc.  
4 ("SEMI") for firm gas capacity of 120,000 dekatherms per day. When gas supply is  
5 needed, SEMI supplies this service as a bundled service that includes transportation and  
6 gas supply. My department also procures gas supply for SEMI for provision to the Jasper  
7 facility under the terms of the contract between SCE&G and SEMI.

8 **Q. DURING THE PERIOD UNDER REVIEW, WERE GAS PRICES MORE**  
9 **VOLATILE THAN NORMAL?**

10 A. Yes, for the period from February 1, 2005 through January 31, 2006, there were  
11 enormous fluctuations in gas prices. At the start of the period, prices were approximately  
12 \$6.50 per dekatherm on average. The price of natural gas fluctuated in the \$6 to \$8 range  
13 through June 2005, then steadily increased due to warm weather until Hurricanes Katrina  
14 and Rita hit and severely damaged the Gulf production areas in late August and mid-  
15 September, 2005. Gas prices then sky-rocketed to over \$20 per dekatherm in September  
16 2005. Prices began to moderate in late October 2005 as production facilities were  
17 brought back on line and moderated further in November 2005. As the winter  
18 approached in December 2005 and weather was colder than normal, the average prices  
19 spiked again to over \$15 per dekatherm. Since December 2005, there has been a  
20 moderating trend due to warmer than normal weather and elevated storage levels  
21 returning gas prices to about \$8 per dekatherm by the end of January 2006.

22 2005 has proven to be the most volatile year on record for gas prices. Hopefully,  
23 the future will not provide two major hurricanes damaging the Gulf production areas in a

1 single year within a month of one another. However, all of us in the energy business  
2 must be alert to the prospect that gas prices may be extremely volatile during periods of  
3 unusual weather, growing demand, and supply constraints.

4 **Q. IN THE VOLATILE GAS MARKETS OF FEBRUARY 2005 THROUGH**  
5 **JANUARY 2006, ARE YOU CONFIDENT THAT YOUR DEPARTMENT**  
6 **SECURED MARKET BASED PRICES FOR GAS PURCHASES MADE FOR**  
7 **SCE&G GENERATION NEEDS?**

8 A. Yes. I and all members of the Gas Supply and Capacity Management team are  
9 dedicated to ensuring that we procure gas supply and capacity at market-based rates from  
10 entities that are creditworthy and provide reliable and timely delivery. We have a  
11 dependable group of suppliers that we have vetted over a number of years and are  
12 confident in their ability to provide us with natural gas when needed and at reasonable  
13 prices. In summary, I can assure this Commission and our customers that during the  
14 period under review, SCE&G acquired natural gas at reasonable, market-based rates to  
15 ensure reliable and timely delivery for electric generation. We will continue to do all that  
16 is reasonably possible in the future to acquire gas supplies at reasonable prices in order to  
17 ensure reliable and reasonably-priced electric service.

18 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

19 A. Yes.

1 DIRECT TESTIMONY  
2 OF  
3 JOHN R. HENDRIX  
4 ON BEHALF OF  
5 SOUTH CAROLINA ELECTRIC & GAS COMPANY  
6 DOCKET NO. 2006-2-E  
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8 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

9 A. John R. Hendrix, 1426 Main Street, Columbia, South Carolina.

10 Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

11 A. I am Manager of Electric Pricing and Rate Administration at SCANA Services,  
12 Inc.

13 Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND BUSINESS  
14 EXPERIENCE.

15 A. I am a graduate of the University of South Carolina where I received a Bachelor  
16 of Science Degree in Business Administration with a major in marketing. Since  
17 joining South Carolina Electric & Gas Company in August 1983, I have held  
18 various positions within the Rate Department. In November 2002, I assumed my  
19 present position. I have participated in cost of service studies, rate development  
20 and design, and rate evaluation programs for both the electric and gas  
21 operations. I am a member of the Southeastern Electric Exchange Rate Section.

22 Q. WILL YOU BRIEFLY SUMMARIZE YOUR DUTIES WITH SOUTH CAROLINA  
23 ELECTRIC & GAS COMPANY?

1 A. I am responsible for the design and administration for the Company's electric  
2 rates and tariffs including the electric fuel adjustment. In addition, I am  
3 responsible for the Company's electric cost allocation studies.

4 **Q. MR. HENDRIX, WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**  
5 **PROCEEDING?**

6 A. The purpose of my testimony is to provide the actual fuel cost data for the period  
7 February 1, 2005 through January 31, 2006, the historical period under review in  
8 this proceeding. I will also provide the computations for the projected fuel cost  
9 per kilowatt-hour of sales for the period May 1, 2006 through April 30, 2007,  
10 along with the Company's recommended fuel rate for the period ending April 30,  
11 2007.

12 **Q. WHAT IS THE COMPANY'S CURRENTLY APPROVED RATE FOR FUEL**  
13 **COST?**

14 A. On May 5, 2005, in Order No. 2005-187, the Commission approved a 2.256  
15 cents per KWH fuel component.

16 **Q. WILL YOU PLEASE EXPLAIN EXHIBIT NO. \_\_\_\_\_(JRH-1)?**

17 A. Exhibit No. \_\_\_\_\_(JRH-1) shows the actual fuel cost and over/under  
18 recovery of fuel revenue experienced by the Company for the months of  
19 February 2005 through January 2006, as well as the forecast for February,  
20 March and April 2006. As shown on this Exhibit, the Company has an actual  
21 under collection of \$54,648,833 as of January 2006. The forecasted balance at  
22 April 30, 2006 is an under collection of \$38,394,084.

23 **Q. WILL YOU PLEASE EXPLAIN EXHIBIT NO. \_\_\_\_\_(JRH-2)?**

1 A. Exhibit No.\_\_\_\_(JRH-2) contains the Company's fuel cost forecast and  
2 projected recovery calculations by month for May 2006 through April 2007. This  
3 exhibit reflects the monthly and cumulative over and under projected fuel cost  
4 collection expected by the Company using its recommended fuel rate. The  
5 projection shows an under recovery of \$38,394,084 at April 30, 2006 and a  
6 balance at period end as close to zero as possible.

7 **Q. BY WHAT PROCESS DO YOU DEVELOP YOUR FUEL FACTOR FOR**  
8 **SCE&G'S RATES?**

9 A. As Mr. Lynch indicates in his testimony, we receive the output from the PROSYM  
10 model from the Resource Planning Department. This data is loaded onto  
11 spreadsheets along with fuel ending inventories, emission allowances,  
12 forecasted fuel prices and information regarding operations to determine  
13 projected fuel costs for February, March and April 2006, as well as the twelve  
14 months ending April 30, 2007.

15 **Q. WILL YOU PLEASE EXPLAIN EXHIBIT NO.\_\_\_\_(JRH-3)?**

16 A. Exhibit No.\_\_\_\_(JRH-3) provides the calculation of the projected fuel  
17 component for the twelve-month period May 2006 through April 2007, as well as  
18 the Company's fuel rate recommendation. For the twelve months May 2006  
19 through April 2007 the base fuel cost is 2.601 cents per KWH, which includes  
20 .171 cents per KWH to recover the anticipated under collection.

21 **Q. MR. HENDRIX, WHAT FUEL COMPONENT IS THE COMPANY PROPOSING**  
22 **IN THIS PROCEEDING?**

1 A. The Company is proposing that the fuel component be set at 2.601 cents per  
2 KWH effective for bills rendered on and after the first billing cycle of May 2006  
3 and continuing through the billing month of April 2007.

4 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

5 A. Yes.

## SOUTH CAROLINA ELECTRIC &amp; GAS COMPANY

## FUEL COSTS REPORT

## ACTUAL 2005

LINE NO.	FEBRUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST	
	OLD BASE \$	FACTOR	NEW BASE \$	FACTOR	OLD BASE \$	FACTOR	OLD BASE \$	FACTOR	OLD BASE \$	FACTOR	OLD BASE \$	FACTOR	OLD BASE \$	FACTOR	OLD BASE \$	FACTOR
1.	TOTAL COST OF FOSSIL FUEL BURNED		24,544,124	24,544,124	28,198,849	26,708,371	38,983,966	41,878,190	59,920,651	68,252,731						
2.	NUCLEAR FUEL		2,214,383	2,214,383	2,443,482	1,668,074	37,400	1,871,150	2,070,534	1,810,439						
3.	PURCHASED AND INTERCHANGE POWER FUEL COSTS		12,508,168	12,508,168	12,196,794	11,580,547	13,390,014	10,934,021	11,214,192	12,447,075						
4.	LESS FUEL RECOVERED THROUGH INTERSYSTEM SALES		3,326,419	3,326,419	4,960,930	2,650,639	2,563,490	7,455,848	9,616,433	13,987,932						
5.	TOTAL FUEL COSTS (LINES 1+2+3-4)		35,940,256	35,940,256	37,878,195	37,306,353	49,847,890	47,227,513	63,588,944	68,522,313						
6.	TOTAL SYSTEM SALES EXCLUDING INTERSYSTEM SALES (KWH)		1,851,109,754	1,851,109,754	1,812,405,680	1,666,023,631	1,682,181,751	2,015,009,548	2,209,423,052	2,319,561,664						
7.	FOSSIL FUEL COST PER KWH SALES		0.019416	0.019416	0.020899	0.022392	0.029633	0.023438	0.028781	0.029541						
8.	LESS BASE COST PER KWH INCLUDED IN RATES		0.018210	0.017640	0.017640	0.017640	0.022560	0.022560	0.022560	0.022560						
9.	FOSSIL FUEL ADJUSTMENT PER KWH		0.00121	0.00178	0.00326	0.00475	0.00707	0.00088	0.00622	0.00698						
10.	RETAIL KWH		359,485,943	1,379,436,719	1,696,887,251	1,562,684,969	1,568,079,372	1,885,490,149	2,057,503,937	2,167,554,267						
11.	OVER/UNDER RECOVERY REVENUE		434,978	2,455,397	5,531,852	7,422,754	11,086,321	1,659,231	12,797,674	15,129,529						
12.	ADJUSTMENT		0	(227,840)	(35,414)	0	0	0	0	(105,327)						
13.	FIXED CAPACITY CHARGES		(141,418)	(1,251,031)	(1,583,583)	(1,583,583)	(1,583,583)	(1,583,583)	(1,583,583)	(1,583,583)						
14.	NET OVER/UNDER RECOVERY REVENUE		293,560	976,526	3,912,855	5,839,171	9,502,738	75,648	11,214,091	13,440,619						
15.	CUMULATIVE UNDER(OVER) \$24,190,208		0	25,460,294	29,373,149	35,212,320	44,715,058	44,790,706	56,004,797	69,445,416						

Note for Adjustments: a. Miscellaneous adjustments.

b. Settlement of (\$6,000,000) with DOE regarding spent nuclear fuel and high level waste.

## SOUTH CAROLINA ELECTRIC &amp; GAS COMPANY

## FUEL COSTS REPORT

FORECAST 2006

ACTUAL 2005 - 2006

LINE NO.	SEPTEMBER \$	OCTOBER \$	NOVEMBER \$	DECEMBER \$	JANUARY \$	FEBRUARY \$	MARCH \$	APRIL \$
1. TOTAL COST OF FOSSIL FUEL BURNED	54,877,697	32,909,254	27,922,351	41,734,480	28,248,323	29,532,000	38,777,000	30,234,000
2. NUCLEAR FUEL	2,049,335	2,127,429	2,054,057	2,130,587	2,130,846	1,904,000	(3,886,000) b	2,042,000
3. PURCHASED AND INTERCHANGE POWER FUEL COSTS	11,667,602	10,058,045	11,033,325	10,546,677	10,091,954	10,744,000	4,923,000	10,571,000
4. LESS FUEL RECOVERED THROUGH INTERSYSTEM SALES	<u>13,298,478</u>	<u>3,967,652</u>	<u>5,668,838</u>	<u>10,760,227</u>	<u>4,077,103</u>	<u>4,786,000</u>	<u>4,323,000</u>	<u>8,689,000</u>
5. TOTAL FUEL COSTS (LINES 1+2+3-4)	55,296,156	41,127,076	35,340,895	43,651,617	36,394,020	37,394,000	35,491,000	34,158,000
6. TOTAL SYSTEM SALES EXCLUDING INTERSYSTEM SALES (KWH)	2,305,903,803	2,033,872,887	1,648,605,655	1,825,454,106	1,906,350,203	1,831,000,000	1,776,000,000	1,683,000,000
7. FOSSIL FUEL COST PER KWH SALES	0.023980	0.020221	0.021437	0.023913	0.019091	0.020423	0.019984	0.020296
8. LESS BASE COST PER KWH INCLUDED IN RATES	0.022560	0.022560	0.022560	0.022560	0.022560	0.022560	0.022560	0.022560
9. FOSSIL FUEL ADJUSTMENT PER KWH	0.00142	(0.00234)	(0.00112)	0.00135	(0.00347)	(0.00214)	(0.00258)	(0.00226)
10. RETAIL KWH	2,168,679,800	1,907,873,998	1,535,662,470	1,694,889,969	1,786,188,846	1,715,000,000	1,662,000,000	1,569,000,000
11. OVER/UNDER RECOVERY REVENUE	3,079,525	(4,464,425)	(1,719,942)	2,288,101	(6,198,075)	(3,670,100)	(4,287,960)	(3,545,940)
12. ADJUSTMENT	21,676	0	0	114,472	0	0	0	0
13. FIXED CAPACITY CHARGES	(1,583,583)	(1,583,583)	(1,583,583)	(1,583,583)	(1,583,583)	(1,583,583)	(1,583,583)	(1,583,583)
14. NET OVER/UNDER RECOVERY REVENUE	1,517,618	(6,048,008)	(3,303,525)	818,990	(7,781,658)	(5,253,683)	(5,871,543)	(5,129,523)
15. CUMULATIVE UNDER(OVER) \$69,445,416	70,963,034	64,915,026	61,611,501	62,430,491	54,648,833	49,395,150	43,523,607	38,394,084

Note for Adjustments: a. Miscellaneous adjustments.

b. Settlement of (\$6,000,000) with DOE regarding spent nuclear fuel and high level waste.

## SOUTH CAROLINA ELECTRIC &amp; GAS COMPANY

## FUEL COSTS REPORT

## 2006 FORECAST

LINE NO.	MAY \$	JUNE \$	JULY \$	AUGUST \$	SEPTEMBER \$	OCTOBER \$
1. TOTAL COST OF FOSSIL FUEL BURNED	40,600,000	50,631,000	59,231,000	58,859,000	44,033,000	42,546,000
2. NUCLEAR FUEL	2,114,000	2,025,000	2,091,000	2,091,000	2,025,000	957,000
3. PURCHASED AND INTERCHANGE POWER FUEL COSTS	11,330,000	14,340,000	16,249,000	15,504,000	14,746,000	13,315,000
4. LESS FUEL RECOVERED THROUGH INTERSYSTEM SALES	<u>12,262,000</u>	<u>11,253,000</u>	<u>11,935,000</u>	<u>12,705,000</u>	<u>9,669,000</u>	<u>7,349,000</u>
5. TOTAL FUEL COSTS (LINES 1+2+3-4)	41,782,000	55,743,000	65,636,000	63,749,000	51,135,000	49,469,000
6. TOTAL SYSTEM SALES EXCLUDING INTERSYSTEM SALES (KWH)	1,851,000,000	2,163,000,000	2,360,000,000	2,393,000,000	2,229,000,000	1,895,000,000
7. FOSSIL FUEL COST PER KWH SALES	0.022573	0.025771	0.027812	0.026640	0.022941	0.026105
8. LESS BASE COST PER KWH INCLUDED IN RATES	0.026010	0.026010	0.026010	0.026010	0.026010	0.026010
9. FOSSIL FUEL ADJUSTMENT PER KWH	(0.00344)	(0.00024)	0.00180	0.00063	(0.00307)	0.00010
10. RETAIL KWH	1,727,000,000	2,027,000,000	2,210,000,000	2,244,000,000	2,105,000,000	1,784,000,000
11. OVER/UNDER RECOVERY REVENUE	(5,940,880)	(486,480)	3,978,000	1,413,720	(6,462,350)	178,400
12. ADJUSTMENT	0	0	0	0	0	0
13. FIXED CAPACITY CHARGES	(1,583,583)	(1,583,583)	(1,583,583)	(1,583,583)	(1,583,583)	(1,583,583)
14. NET OVER/UNDER RECOVERY REVENUE	(7,524,463)	(2,070,063)	2,394,417	(169,863)	(8,045,933)	(1,405,183)
15. CUMULATIVE UNDER(OVER) \$38,394,084	30,869,621	28,799,558	31,193,975	31,024,112	22,978,179	21,572,996

Exhibit No. (JRH-2)

## SOUTH CAROLINA ELECTRIC &amp; GAS COMPANY

## FUEL COSTS REPORT

## 2006 - 2007 FORECAST

LINE NO.	NOVEMBER \$	DECEMBER \$	JANUARY \$	FEBRUARY \$	MARCH \$	APRIL \$
1. TOTAL COST OF FOSSIL FUEL BURNED	39,741,000	39,854,000	37,287,000	29,895,000	31,736,000	33,263,000
2. NUCLEAR FUEL	330,000	2,036,000	2,036,000	1,835,000	2,036,000	1,968,000
3. PURCHASED AND INTERCHANGE POWER FUEL COSTS	18,594,000	10,816,000	15,526,000	13,677,000	13,032,000	12,382,000
4. LESS FUEL RECOVERED THROUGH INTERSYSTEM SALES	<u>3,517,000</u>	<u>8,940,000</u>	<u>5,580,000</u>	<u>4,650,000</u>	<u>2,903,000</u>	<u>4,693,000</u>
5. TOTAL FUEL COSTS (LINES 1+2+3-4)	55,148,000	43,766,000	49,269,000	40,757,000	43,901,000	42,920,000
6. TOTAL SYSTEM SALES EXCLUDING INTERSYSTEM SALES (KWH)	1,738,000,000	1,872,000,000	2,037,000,000	1,881,000,000	1,831,000,000	1,735,000,000
7. FOSSIL FUEL COST PER KWH SALES	0.031731	0.023379	0.024187	0.021668	0.023977	0.024738
8. LESS BASE COST PER KWH INCLUDED IN RATES	0.026010	0.026010	0.026010	0.026010	0.026010	0.026010
9. FOSSIL FUEL ADJUSTMENT PER KWH	0.00572	(0.00263)	(0.00182)	(0.00434)	(0.00203)	(0.00127)
10. RETAIL KWH	1,627,000,000	1,745,000,000	1,907,000,000	1,764,000,000	1,713,000,000	1,617,000,000
11. OVER/UNDER RECOVERY REVENUE	9,306,440	(4,589,350)	(3,470,740)	(7,655,760)	(3,477,390)	(2,053,590)
12. ADJUSTMENT	0	0	0	0	0	0
13. FIXED CAPACITY CHARGES	(1,583,583)	(1,583,583)	(1,583,583)	(1,583,583)	(1,583,583)	(1,583,583)
14. NET OVER/UNDER RECOVERY REVENUE	7,722,857	(6,172,933)	(5,054,323)	(9,239,343)	(5,060,973)	(3,637,173)
15. CUMULATIVE UNDER(OVER) \$21,572,996	29,295,853	23,122,920	18,068,597	8,829,254	3,768,281	131,108

Exhibit No. (JRH-2)

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
CALCULATION OF BASE FUEL COMPONENT**

**FORECAST  
MAY 06 - APR 07  
12 MONTHS**

**1. PROJECTED DATA:**

COST OF FUEL (\$000)	\$603,275
SYSTEM SALES (GWH)	23,985
AVERAGE COST (CENTS/KWH)	2.515

**2. (OVER)/UNDER COLLECTION (\$000) THROUGH APRIL 2006**

	\$38,394
SOUTH CAROLINA RETAIL SALES (GWH)	22,470
AVERAGE COST (CENTS/KWH)	0.171

**3. BASE COST (CENTS/KWH):**

PROJECTED FUEL COST	2.515
AVERAGE COST - FIXED TRANSPORTATION CHARGE (CENTS/KWH) (a)	<u>(0.085)</u>
PROJECTED FUEL COST LESS FIXED TRANSPORTATION CHARGE	2.430
(OVER)/UNDER RECOVERY RATE	<u>0.171</u>
TOTAL PROJECTED BASE FUEL COST	<u>2.601</u>

Note (a): The calculation for Average Cost - Fixed Transportation Charge (Cents/KWH) is (\$19,003) divided by retail sales (22,470).

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**DIRECT TESTIMONY**

**OF**

**JEFFREY B. ARCHIE**

**ON BEHALF OF**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY**

**DOCKET NO. 2006-2-E**

**Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND POSITION  
WITHIN SOUTH CAROLINA ELECTRIC AND GAS COMPANY (SCE&G).**

A. My name is Jeffrey B. Archie. My business address is P.O. Box 88, Jenkinsville, South Carolina. I am employed by SCE&G as a Vice President and am currently the Vice President of Nuclear Operations at the Virgil C. Summer Nuclear Station (VCSNS or VC Summer).

**Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND  
PROFESSIONAL EXPERIENCE.**

A. I received a BS degree in Mechanical Engineering from the University of South Carolina in 1981. I also completed VC Summer's Senior Reactor Operator Certification training program in 1996.

My entire professional career has been spent at VC Summer Nuclear Station working in a number of different capacities. In these various positions I have had opportunities to serve as the station's Refuel 10 Outage Manager from 1996 to 1998. In April 2001, I was promoted to General Manager of Engineering Services, and in August 2003 I was promoted to General Manager of Nuclear Plant Operations. I have been the Vice President of Nuclear Operations since August 2004.

1    **Q.    WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

2    A.    The purpose of my testimony is to review the operating performance of VCSNS during  
3           the period from February 1, 2005, through January 31, 2006.

4    **Q.    WHAT ARE YOUR OBJECTIVES IN THE OPERATION OF VCSNS?**

5    A.    Our primary objective at VCSNS is always safe operation. We also strive for excellence  
6           in all phases of operation of the facility. The station's key focus areas of Safety,  
7           Equipment Reliability, outage performance, and organizational effectiveness have  
8           facilitated the station's good performance through enhanced alignment of the  
9           organization.

10          Our business objectives are focused on maintaining a competitive production cost for the  
11          generation of electricity using nuclear fuel.

12   **Q.    WHAT HAS BEEN THE COMPANY'S EXPERIENCE WITH THE**  
13   **PERFORMANCE OF THE VCSNS?**

14   A.    We continuously meet or exceed all Nuclear Regulatory Commission (NRC)  
15          requirements and Institute of Nuclear Power Operations (INPO) standards. VCSNS has  
16          performed well during the period from February 1, 2005, through January 31, 2006.  
17          Consistent with the provisions of Section 58-27-865 of the South Carolina Code of Laws,  
18          as amended, VC Summer's net capacity factor based on reasonable excludable nuclear  
19          system reductions during the review period was 101.2 % and the gross generation output  
20          was 7,470,713 MWH's.

21   **Q.    HAS VCSNS EXPERIENCED ANY OUTAGES DURING THE REVIEW**  
22   **PERIOD?**

1 A. Yes, VCSNS has experienced two outages during the review period. On the 23rd  
2 of April, 2005, the unit was shut down for 39.9 days to conduct our 15th scheduled  
3 refueling outage (RF15). We met all technical objectives and completed scheduled  
4 maintenance activities. During RF15 we set a number of new performance records.  
5 These new records were equal to or less than industry best times for similar plants and  
6 reduced total outage time 20 hrs from our previous best. The improvement was the result  
7 of pre-outage planning, look-ahead meetings, and everyone working together with a good  
8 knowledge of the task at hand.

9 As we approached the end of the outage a number of emergent issues with safety and  
10 spray valves challenged us. We successfully met these challenges. The Plant was put  
11 back on line on June 1, 2005, and returned to full power operation on June 8, 2005.

12 On August 25, 2005 the reactor tripped due to failure of the "B" Condensate pump motor  
13 and the discharge isolation valve for the "C" Condensate pump failing to open in a timely  
14 manner. Repairs were made and the plant was returned to service in 2.2 days. The plant  
15 achieved 100% power on August 29, 2005.

16 **Q. WHEN WILL THE NEXT REFUELING OUTAGE OCCUR?**

17 A. Refueling outages are scheduled every 18 months to replace depleted fuel assemblies.  
18 Simultaneously, maintenance and testing that cannot be done with the plant on-line is  
19 conducted. Our next refueling outage will be RF16 starting on October 13, 2006.

20 **Q. PLEASE EXPLAIN THE ROLES OF INPO AND THE NRC WITHIN THE**  
21 **NUCLEAR INDUSTRY AND DESCRIBE ANY RANKINGS RECEIVED BY**  
22 **VCSNS FROM THOSE AGENCIES.**

1 A. INPO is a nonprofit corporation established by the nuclear industry to promote the  
2 highest levels of nuclear safety and plant reliability. INPO promotes excellence in the  
3 industry in the operation of nuclear electric generating plants. For the applicable  
4 reporting period, INPO rated VCSNS's overall performance as exemplary.

5 The NRC is responsible for the licensing and oversight of the civilian use of nuclear  
6 materials in the United States. VCSNS received the NRC's most favorable rating level  
7 for a nuclear power plant. This rating was based on all inspection findings being  
8 classified as having very low safety significance and all performance indicators at a level  
9 requiring no additional NRC oversight during the review period. Due to this rating, the  
10 NRC currently implements only its baseline inspection program at VCSNS.

11 **Q. PLEASE EXPLAIN THE SETTLEMENT WITH THE UNITED STATES**  
12 **DEPARTMENT OF ENERGY REGARDING SPENT NUCLEAR FUEL AND**  
13 **HIGH LEVEL WASTE.**

14 As co-owners of VCSNS, SCE&G and South Carolina Public Service Authority ("PSA")  
15 entered into a standard contract with the United States Department of Energy ("DOE")  
16 for the acceptance of spent nuclear fuel and high level waste ("SNF/HLW") under the  
17 Nuclear Waste Policy Act. That contract required DOE commence acceptance of  
18 SNF/HLW no later than January 31, 1998. DOE did not so commence. SCE&G and  
19 PSA filed a lawsuit against the government for breach of this contract. The parties  
20 recently entered into a settlement agreement. Pursuant to that agreement, SCE&G shall  
21 receive \$6 million from DOE. Those funds are being applied in this docket as a credit to  
22 nuclear fuel costs in the forecasted month of March 2006. In addition to the cash

1 settlement is an agreement on a mechanism for handling reimbursement of costs for spent  
2 fuel going forward.

3 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

4 **A. Yes.**

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**DIRECT TESTIMONY OF**

**JOSEPH M. LYNCH**

**ON BEHALF OF**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY**

**DOCKET NO. 2006-2-E**

**Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND CURRENT POSITION.**

A. Joseph M. Lynch, 1426 Main Street, Columbia, South Carolina. My current position is Manager of Resource Planning, SCANA Services, Inc.

**Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.**

A. I graduated from St. Francis College in Brooklyn, New York with a Bachelor of Science degree in mathematics. From the University of South Carolina I received a Master of Arts degree in mathematics, an MBA and a Ph.D. in management science and finance. I was employed by South Carolina Electric & Gas Company ("SCE&G" or the "Company") as a Senior Budget Analyst in 1977 to develop econometric models to forecast electric sales and revenue. In 1980, I was promoted to Supervisor of the Load Research Department. In 1985, I became Supervisor of Regulatory Research where I was responsible for load research and electric rate design. In 1989, I became Supervisor of Forecasting and Regulatory Research, and, in 1991, I was promoted to my current position of Manager of Resource Planning.

**Q. BRIEFLY SUMMARIZE YOUR CURRENT DUTIES.**

1 A. As manager of Resource Planning I am responsible for producing SCE&G's forecast  
2 of energy, peak demand and revenue; for developing the Company's generation  
3 expansion plans; and for overseeing the Company's load research program.

4 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

5 A. The purpose of my testimony is to discuss the Company's short-range energy sales  
6 forecast and to explain how we simulate the operation of our power plants to generate the  
7 required energy and project the resulting fuel requirements for the system.

8 **Q. DESCRIBE THE COMPANY'S SHORT-RANGE ENERGY FORECASTING**  
9 **PROCESS.**

10 A. Each summer the Company updates its short-range and long-range sales forecast as  
11 part of its annual planning cycle. The long-range sales forecast refers to the forecast for  
12 the full twenty year planning horizon. The short-range sales forecast refers to the forecast  
13 for the first two years of the planning horizon and is projected on a month-by-month  
14 basis. In preparing the short-range sales forecast, we divide our customers into detailed  
15 forecasting groups defined by rate and class. Where possible, customers are further  
16 divided into electric space heating and non-electric space heating groups. Residential  
17 customers are further separated into those living in either single-family, multi-family or  
18 mobile homes. We forecast consumption for about twenty of our largest industrial  
19 customers on an individual basis while the balance are separated into 2-digit SIC groups.  
20 Exhibit No. \_\_ (JML-1) shows most of the detailed groups. Where a detailed customer  
21 group contains a large number of homogeneous customers, separate econometric models  
22 are developed to project the number of customers and the average use per customer based  
23 on such factors as population growth, and levels of economic activity within our service

1 territory. All residential groups and small commercial groups are projected in this way.

2 Weather is a significant factor in the residential and commercial models. Projections are  
3 based on normal weather where normal is defined as the average taken over the last 15  
4 years. Overall, nearly 100 econometric and statistical models are utilized to develop the  
5 short-run forecast.

6 **Q. IS YOUR ENERGY FORECASTING METHODOLOGY TYPICAL FOR THE**  
7 **INDUSTRY?**

8 A. Yes, our use of multiple regression and statistical time-series models is fairly standard  
9 throughout the industry.

10 **Q. HOW ACCURATE HAS YOUR ENERGY FORECASTING METHODOLOGY**  
11 **BEEN?**

12 A. Over the past ten years the mean absolute percent error (MAPE) has been 1.1% when  
13 comparing the forecast to the weather-normalized actual consumption of energy on our  
14 system.

15 **Q. WHAT IS YOUR ENERGY FORECAST FOR 2006?**

16 A. We expect our territorial customers to consume 23,787 gigawatthours of energy in  
17 2005 with 33% being consumed by our residential customers, 30% by our commercial  
18 customers, 28% by our industrial customers and the balance of 9% by the combination of  
19 the remaining retail classes and our territorial wholesale customers.

20 **Q. EXPLAIN HOW YOU TRANSLATE THIS ENERGY SALES FORECAST**  
21 **INTO A FORECAST OF FUEL REQUIREMENTS FOR THE ELECTRIC**  
22 **SYSTEM?**

1 A. We simulate the dispatch of our generating units with the software program  
2 PROSYM. PROSYM is licensed with Global Energy Decisions, Inc. It is a well-accepted  
3 tool in the industry being used by over 100 utilities.

4 **Q. DISCUSS THE PROSYM MODEL INPUTS.**

5 A. The following are key inputs to the model:

- 6 1. Energy Sales Forecast
- 7 2. Fuel Price Data
- 8 3. Generator Operating Parameters; and
- 9 4. Market Prices.

10 Exhibit No. \_\_\_\_ (JML-2) graphically displays these inputs.

11 **Energy Sales Forecast:** I have already described the creation of the monthly  
12 energy sales forecast. This is used to create forecasts of hourly loads based on historical  
13 hourly load profiles.

14 **Fuel Price Data:** A forecast of monthly fuel prices for coal and oil are provided  
15 by the SCE&G Fossil/Hydro Procurement Department. Fuel data includes transportation  
16 costs and sulfur content of coal. A forecast of monthly nuclear fuel prices is provided by  
17 the SCE&G Nuclear Fuel Management Department. A gas price forecast is created using  
18 the Nymex natural gas futures prices. Expected gas transportation costs are added to the  
19 Nymex prices to create a forecast of the delivered cost of gas. In the forecast presented  
20 here, we are using the prices of the Nymex futures contracts from market close on  
21 February 10, 2006. The average price for the twelve contracts, May 2006 through April  
22 2007, was \$8.76 per DT.

1           **Generator Operating Parameters:** Generator operating parameters include heat  
2 rate, capacity, maintenance outage schedule, forced outage rate, and operating  
3 constraints. Operating constraints include variables such as minimum up and down  
4 times, ramp rates, and start costs. All of these variables control the cost and feasibility of  
5 dispatching each unit each hour.

6           **Market Prices:** The market prices for power are input into the model to reflect  
7 the opportunities that SCE&G has to purchase power at prices below its marginal cost of  
8 generation or to sell power above its marginal cost of generation. The market prices  
9 utilized in the model are determined using SCE&G's marginal costs and the marginal  
10 costs of utilities in the southeast.

11   **Q. EXPLAIN HOW PROSYM MODELS THE ELECTRIC SYSTEM.**

12   A. PROSYM is a chronological hourly dispatch model. In each hour of a study period,  
13 PROSYM arranges all the available supply sources from lowest cost to highest and then  
14 determines the least-cost way to meet the customer load in that hour while considering a  
15 complex set of operating constraints. As part of this dispatching process, PROSYM also  
16 simulates random unscheduled outages of our plants based on the forced outage rates that  
17 were part of the input database.

18   **Q. WHAT ARE THE PROSYM RESULTS FOR 2006?**

19   A. Based on the PROSYM simulations, we expect to supply 27,747 gigawatt hours of  
20 energy to the electric grid. This includes losses and energy required for pumping at our  
21 pumped storage plant. Of this total supply, we expect about 65% to come from coal, 18%  
22 from nuclear, 9% from natural gas, 4% from hydro and 4% from off-system purchases.

1 **Q. HOW SENSITIVE ARE THE SYSTEM FUEL COSTS TO THE SYSTEM**  
2 **ENERGY NEEDS?**

3 A. Since we dispatch the most economical generating units first, an increase or decrease  
4 in sales will occur at the margin and will involve the more costly sources of power. We  
5 estimate that a 1% change in energy requirements, which is about our average forecast  
6 error, will result in about a 2% change in fuel costs assuming, of course, that the only  
7 input being changed is the energy needs of our customers.

8 **Q. AFTER RUNNING THE PROSYM MODEL, WHAT IS THE NEXT STEP IN**  
9 **YOUR PROCESS?**

10 A. For the purpose of these proceedings, the PROSYM model output that defines how the  
11 SCE&G electric system will meet the projected electric load is passed to the Rate  
12 Department, which develops the appropriate fuel factor for SCE&G rates. Mr. Hendrix  
13 will discuss this subject. The specific data items that are passed to the Rate Department  
14 are plant generation, plant average heat rate, heat content of the coal, capacity factors by  
15 unit, off system purchases and sales, and associated market prices. These model outputs  
16 form an appropriate basis for projecting fuel costs for the forecast period in this  
17 proceeding.

18 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

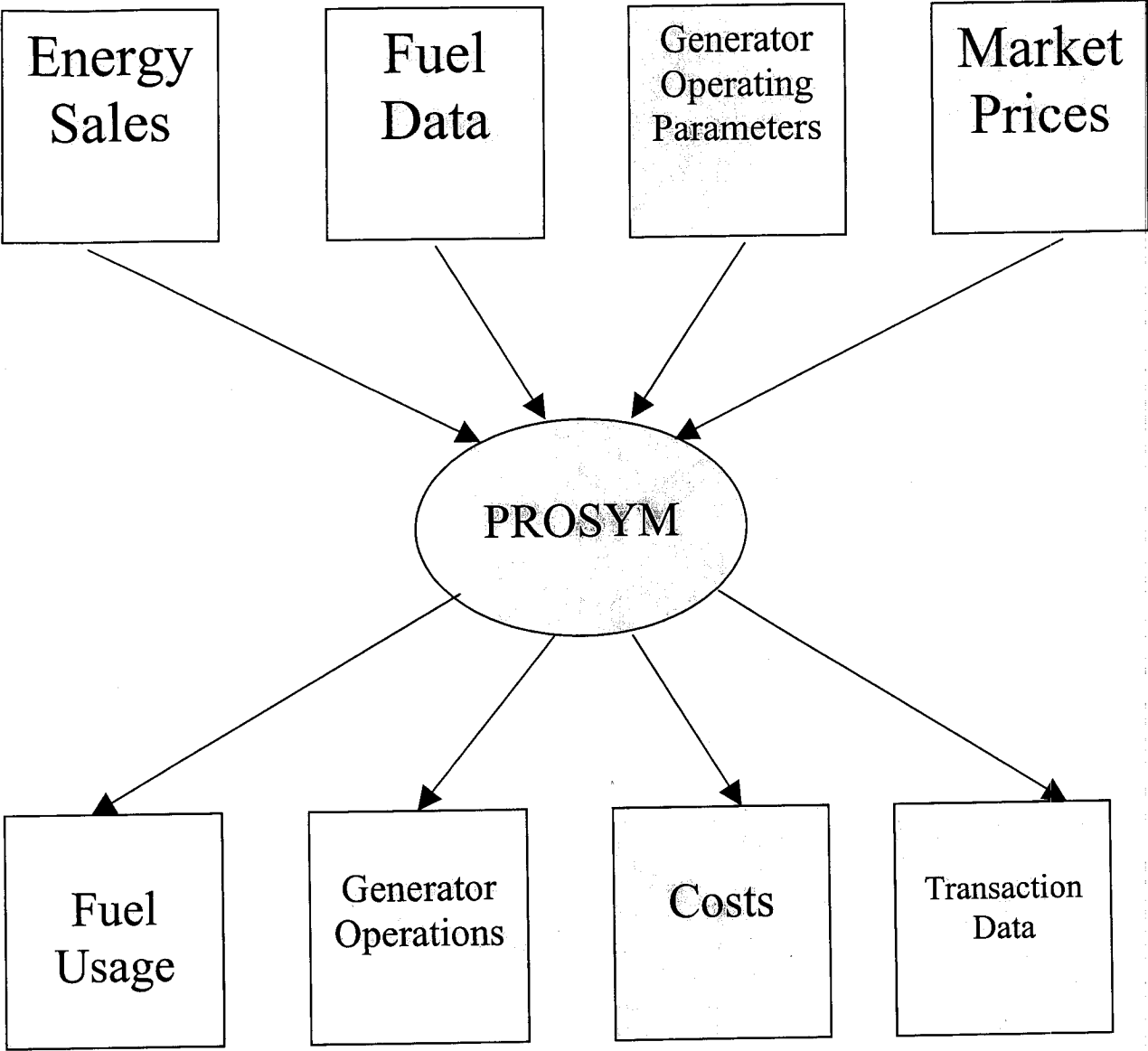
19 A. Yes it does.

## Short-Term Forecasting Groups, 2006 – 2007

<u>Class Number</u>	<u>Class Name</u>	<u>Rate/SIC Designation</u>	<u>Comment</u>
10	Residential Non-Space Heating	Single Family	Rates 1, 2, 5, 6, 8, 18, 25, 26, 62, 64
910	Residential Space Heating	Multi Family	Rates 67, 68, 69
		Mobile Homes	Rates 1, 2, 5, 7, 8
20	Commercial Non-Space Heating	Rate 9	Small General Service
		Rate 12	Churches
		Rate 20, 21	Medium General Service
		Rate 22	Schools
		Rate 24	Large General Service
		Other	Rates 10, 11, 14, 16, 17, 18, 24, 25, 26, 29, 60, 62, 64, 67, 68, 69
920	Commercial Space Heating	Rate 9	Small General Service
30	Industrial Non-Space Heating	Rate 9	Small General Service
		Rate 20, 21	Medium General Service
		Rate 23, SIC 22	Textile Mill Products
		Rate 23, SIC 24	Lumber, Wood Products, Furniture and Fixtures (SIC Codes 24 and 25)
		Rate 23, SIC 26	Paper and Allied Products
		Rate 23, SIC 28	Chemical and Allied Products
		Rate 23, SIC 30	Rubber and Miscellaneous Products
		Rate 23, SIC 32	Stone, Clay, Glass, and Concrete
		Rate 23, SIC 33	Primary Metal Industries; Fabricated Metal Products; Machinery; Electric and Electronic Machinery, Equipment and Supplies; and Transportation Equipment (SIC Codes 33-37)
		Rate 23, SIC 91	Executive, Legislative and General Government (except Finance)
		Rate 23, SIC 99	Other or Unknown SIC Code*
		Rate 27, 60	Large General Service
		Other	Rates 25 and 26
930	Industrial Space Heating	Rate 9	Small General Service
60	Street Lighting	Rates 3, 9, 13, 17, 25, 26, 29, and 69	
70	Other Public Authority	Rate 3 and 29	
		Rates 65 and 66	
92	Municipal	Rate 60, 61	Four Individual Accounts
97	Cooperative	Rate 60, 61	Three Individual Accounts

\* Includes small industrial customers from all SIC classifications that were not previously forecasted individually.

Note: Industrial Rate 23 also includes Rate 24. Commercial Rate 24 also includes Rate 23.



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**DIRECT TESTIMONY**  
**OF**  
**GERHARD HAIMBERGER**  
**ON BEHALF OF**  
**SOUTH CAROLINA ELECTRIC & GAS COMPANY**  
**DOCKET NO. 2006-2-E**

**Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND CURRENT POSITION.**

A. Gerhard Haimberger, 111 Research Drive, Columbia, South Carolina. I am employed by SCANA Services, Inc. as General Manager, Fuel Procurement and Asset Management, providing fuel and transportation purchasing on behalf of South Carolina Electric & Gas Company ("SCE&G" or the "Company").

**Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND YOUR BUSINESS EXPERIENCE.**

A. I have a Bachelor of Science Degree in Mining Engineering from the Colorado School of Mines in Golden, Colorado, and am a registered professional engineer. I have been involved in fuel production or procurement for over thirty years. In July 2003, I was employed by the SCANA Services, Inc. in my current position and report directly to the Senior Vice-President, Fuel Procurement and Asset Management, SCANA Services, Inc.

**Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

A. The purpose of my testimony is to describe the procurement and delivery activities for fossil fuel (coal and oil) used in electric generation for SCE&G and GENCO's Williams Station for the period February 1, 2005 through January 31, 2006 (the "Review Period") and to comment on the current state of the U.S. coal industry, increased global demand

1 for oil and oil products, transportation and the resulting upward market pressures  
2 resulting from these events.

3 **Q. PLEASE EXPLAIN TO THE COMMISSION SOUTH CAROLINA**  
4 **GENERATING COMPANY ("GENCO") AND ITS RELATIONSHIP TO**  
5 **SCE&G.**

6 A. South Carolina Generating Company, Inc., ("GENCO") was incorporated October 1,  
7 1984. GENCO owns the Williams Electric Generating Station. GENCO sells to  
8 SCE&G the entire capacity and output from the Williams Station under a Unit Power  
9 Sales Agreement approved by the Federal Energy Regulatory Commission. Hereafter  
10 when I refer to SCE&G's fossil steam plants, I include GENCO.

11 **Q. PLEASE SUMMARIZE SCE&G'S FUEL PROCUREMENT NEEDS AND**  
12 **PURCHASING PRACTICES.**

13 A. The Fuel Procurement Department (coal and oil) ("Fuel Procurement") purchases all  
14 necessary coal, fuel oil and associated transportation for SCE&G's fossil plants focusing  
15 on reliability of supply, conformity with operational and environmental requirements,  
16 and securing reasonable prices. We also purchase EPA sulfur-dioxide emission  
17 allowances as determined by SCE&G.

18 **Q. HOW DOES THE COMPANY SECURE THE NECESSARY QUANTITIES OF**  
19 **COAL AND OIL AT COMPETITIVE PRICES?**

20 A. SCE&G maintains an active list of qualified suppliers of coal and fuel oil used to power  
21 its plants. Typically, as contracts expire or needs are identified, solicitations are mailed  
22 out for competitive sealed bids.

23 **Q. HOW DOES SCE&G APPROACH THE MARKETPLACE TO MAINTAIN**  
24 **SUPPLY RELIABILITY AND AT THE SAME TIME LEVERAGE**  
25 **PURCHASING POWER TO NEGOTIATE THE BEST PRICES IN BOTH COAL**  
26 **AND FUEL OIL?**

1 A. Coal is procured with long-term (more than one year) and spot purchase (up to one year)  
2 agreements to achieve a balance of reliable supplies and flexibility to react to market  
3 changes or short-term system needs. We seek to have long-term purchases to represent  
4 approximately 75 to 80 percent of projected system demand and long-term coal  
5 contracts typically are written with variable quantity clauses when market leverage  
6 allows. Variable quantity clauses, when available, and spot purchases provide the  
7 mechanisms to manage inventories and react to short-term changes in the marketplace  
8 should prices become more competitive. By utilizing spot purchases, SCE&G has been  
9 successful in taking advantage of favorable spot market prices and managing its  
10 inventory.

11 Fuel oil contracts are competitively solicited biannually.

12 **Q. HOW DOES SCE&G ASSURE THE RIGHT QUANTITY OF FUEL SUPPLIES**  
13 **TO MEET GENERATION DEMANDS?**

14 A. SCE&G uses several methods to bring the fuel supply and demand factors together.  
15 Fuel usage levels are calculated and forecast for each of the generating plants. Coal and  
16 fuel oil inventories are then validated and contract quantities are summed to determine  
17 system needs going forward. With this information, Fuel Procurement looks at the coal  
18 requirements and the economics of exercising available variable quantity portions of  
19 long-term contracts or the possibility of going to the spot market to purchase any  
20 additional coal requirements at lower pricing. Throughout the years, SCE&G has been  
21 successful in leveraging long-term and short-term coal purchases to achieve reasonably  
22 low purchase prices while assuring the reliability of coal supplies necessary to support  
23 system needs. Since the coal price spike of 2003/2004 and continuing currently, spot  
24 prices have been at, or higher than, long-term contract prices.

25 Fuel oil inventories are purchased to ensure adequate back up to natural gas for  
26 SCE&G's intermediate and peaking generators. Contracts are awarded on a biannual

1 basis using competitive bids. Typically, fuel storage tanks are filled going into peak  
2 usage periods and reduced to lower levels throughout the shoulder months to protect fuel  
3 quality.

4 **Q. HOW DOES THE COMPANY MANAGE COAL INVENTORIES TO INSURE**  
5 **RELIABILITY AND AVAILABILITY?**

6 A. The Company attempts to maintain approximately a 925,000 ton inventory of coal based  
7 on an average of twelve months' ending monthly inventories to support anticipated  
8 consumption. This methodology allows an inventory of more than 925,000 tons at the  
9 beginning of high demand periods and less than 925,000 tons entering the shoulder  
10 months. This inventory level provides adequate coverage to protect SCE&G against  
11 availability, production and delivery problems that may arise from time to time. It also  
12 affords the resources to meet our supply needs when short-term market prices are  
13 unfavorable. It is always important to balance short-term decisions against long-term  
14 requirements and future operating conditions.

15 **Q. HOW DOES THE COMPANY DETERMINE THE "REASONABLE PRICE"**  
16 **FOR FUEL PURCHASES?**

17 A. Fuel Procurement must look for an optimization between adequate supplies of  
18 acceptable quality at reasonable purchase prices with the ultimate value of the delivered  
19 fuel (coal or oil) determined by the actual measured heat rate efficiency in the operation  
20 of our generating plants. Markets are volatile and fluctuate due to such things as  
21 seasonality, political turmoil, national weather trends and supply/demand imbalances.  
22 SCE&G strives to use a variety of pricing mechanisms among coal contracts to mitigate  
23 or normalize the effects on prices created by changes in market conditions and indexes  
24 by staying close to market, balancing adequate inventories against long-term contract  
25 supplies, spot market purchases and variable quantity options. In addition to  
26 strategically managing our current assets, SCE&G stays current with developing trends

1 and fundamental changes taking place in the industry and receives key marketing  
2 information. This information flow is integral in our ongoing analysis of current or  
3 prospective coal costs and market comparability.

4 **Q. SUMMARIZE THE QUANTITY, QUALITY, AND TERM OF THE**  
5 **COMPANY'S COAL PURCHASES.**

6 A. During the Review Period, the Company purchased approximately 6.6 million tons of  
7 coal under long term agreements and .8 million tons of spot purchases. Long term  
8 agreements represented approximately 89% of the requirement for the Company's five  
9 coal-fired stations, GENCO's Williams Station and Savannah River Site. For the  
10 February 2006 through January 2007 period, the Company projects to have long-term  
11 contracts with 11 suppliers totaling 6.4 million tons of coal representing approximately  
12 96% of the total receipts depending on final contract negotiations. The quality ranges  
13 are from 12,200 to 13,000 BTU per pound and sulfur contents from 1.0% to 1.5%. Most  
14 of these contracts are for a period of two to four years with some options to renew. The  
15 amount of coal under contract will vary from year to year. In some of our coal  
16 contracts, we have been successful in negotiating fixed pricing for the term of the  
17 contract. Other coal contracts contain predetermined price adjustments.

18 **Q. WHAT HAS OCCURRED REGARDING COAL PRICES AND**  
19 **TRANSPORTATION RATES IN THE PAST YEAR?**

20 A. In Docket 2005-2-E, SCE&G discussed the recent increases in coal prices and the reasons  
21 for that change. Since that time, coal market prices have remained stable at those  
22 elevated levels. SCE&G renegotiated one coal contract during the Review Period.  
23 Transportation rates are typically confidential. Not having entered into any new  
24 transportation contracts during the Review Period, the Company does not have direct  
25 knowledge of changes in transportation rates.

1 SCE&G is widening its coal specifications by purchasing lower qualities of coal and  
2 blending them with better quality to acceptable levels and further diversifying coal supply  
3 and transportation with some import coal purchases thereby mitigating, at least partially,  
4 domestic supply and transportation constraints.

5 **Q. WHAT WERE SCE&G'S DELIVERED COAL COSTS FOR THE REVIEW**  
6 **PERIOD ?**

7 A. Exhibit No. \_\_\_\_ (GH-1), entitled "Coal Purchased For Steam Plants", displays the  
8 average cost in dollars per MMBTU (million British Thermal Units) for coal purchased  
9 during the Review Period. The highest delivered cost for any individual purchase  
10 during the Review Period was \$3.0428/MMBTU and the lowest was \$1.8848/MMBTU.

11 **Q. WHAT HAS BEEN THE RECENT PRICING TREND IN THE NO. 2 FUEL OIL**  
12 **INDUSTRY?**

13 A. Fuel oil prices again increased dramatically in 2005 reflecting the actions of OPEC,  
14 increasing domestic and global demand led by economic growth in China and India,  
15 political instability in Nigeria, Venezuela and the Middle East. Hurricanes Katrina and  
16 Rita damaged oil and natural gas facilities in the U.S. Gulf Coast region causing upward  
17 price pressure and volatility for crude and refined oil products. Oil prices and volatility  
18 have been regularly reported in the public press. During the past year, delivered prices  
19 have varied from a monthly low of \$1.4428/gallon in February 2005 to a monthly high  
20 of \$2.4735/gallon in October 2006 (\$10.4551/MMBTU to \$17.9239/MMBTU on a  
21 calorific basis). Exhibit No. \_\_\_\_ (GH-2) shows the average system delivered No. 2 fuel  
22 oil prices in \$/MMBTU for the Review Period.

23 **Q. ARE THERE ANY OTHER THINGS THE COMPANY HAS DONE TO**  
24 **MITIGATE FUEL-RELATED EXPENSES THAT WILL IMPACT FUEL**  
25 **COSTS?**

1 A. The Clean Air Act Amendment of 1990 called for electric utilities to reduce sulfur  
2 dioxide (SO2) emissions. An SO2 Emission Allowance Trading Market was established  
3 by the Environmental Protection Agency (EPA) to assist utilities in managing the costs  
4 of complying with these new regulations. The Company has purchased SO2 allowances  
5 as part of our overall strategy to compensate for our SO2 emissions. SO2 emission  
6 allowance prices have increased dramatically since the beginning of 2005 and peaked at  
7 prices in excess of \$1600 per allowance in 2005. These prices reflect the depletion of  
8 available allowances and the actions of hedge funds and other financial organizations  
9 participating in the SO2 markets for speculative purposes.

10 **Q. HAS SCE&G MADE EVERY REASONABLE EFFORT TO MINIMIZE ITS**  
11 **FUEL COSTS?**

12 A. Yes, the Fuel Procurement Department maintains excellent market intelligence with a  
13 team that is highly experienced in the energy and transportation markets and, as outlined  
14 above, has made every reasonable effort to obtain reliable, high quality supplies of fuel  
15 and transportation at the lowest possible cost to SCE&G's customers.

16 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

17 A. Yes.

18

Exhibit No. \_\_\_\_ (GH-1)

Coal Purchased For Steam Plants

\$ /MMBTU Delivered to Plants

February 2005 – January 2006

Feb. 2005	March 2005	April 2005	May 2005	June 2005	July 2005	Aug. 2005	Sept. 2005	Oct. 2005	Nov. 2005	Dec. 2005	Jan. 2006
2.3205	2.4081	2.3990	2.3278	2.443	2.3723	2.4209	2.3682	2.5476	2.4553	2.4826	2.4344

Exhibit No. \_\_\_\_ (GH-2)

Fuel Oil Purchased For Plants

\$ /MMBTU Delivered to Plants

February 2005 – January 2006

Feb. 2005	March 2005	April 2005	May 2005	June 2005	July 2005	Aug. 2005	Sept. 2005	Oct. 2005	Nov. 2005	Dec. 2005	Jan. 2006
10.4550	12.0485	11.9217	11.4986	12.7051	12.5174	13.0348	15.7457	17.9239	14.1870	13.3841	13.5391

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**DIRECT TESTIMONY**

**OF**

**GENE G. SOULT**

**ON BEHALF OF**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY**

**DOCKET NO. 2006-2-E**

1  
2  
3  
4  
5  
6  
7 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION WITH**  
8 **SOUTH CAROLINA ELECTRIC & GAS COMPANY (SCE&G).**

9 A. Gene G. Soutl, 111 Research Drive, Columbia, South Carolina. I am employed by South  
10 Carolina Electric & Gas Company as General Manager of Fossil and Hydro Operations.

11 **Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND YOUR BUSINESS**  
12 **EXPERIENCE.**

13 A. I have a B.A.S. in Management from Troy State University of Troy, Alabama, and a  
14 Master of Business Administration from Webster University. SCE&G employed me in  
15 June 1981, as a Control Room Foreman at V.C. Summer Nuclear Station. In October  
16 1981, I became a Shift Supervisor at V.C. Summer Nuclear Station and continued to  
17 progress through the V.C. Summer management chain to ultimately become the General  
18 Manager, Nuclear Plant Operations in 1991. In 1992, I assumed the position of General  
19 Manager, Quality for SCE&G. In 1993, I became Manager, Cope Generating Station and  
20 maintained that position through construction, startup and initial commercial operation.  
21 In June 1997, I became General Manager, Technical Services in the Fossil/Hydro  
22 Division of SCE&G. Most recently, in January 2000, I assumed my current position of  
23 General Manager, Fossil & Hydro Operations. In this position, I report to the Vice  
24 President of Fossil & Hydro Operations.

25 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

1 A. The purpose of my testimony is to review the operating performance of South Carolina  
2 Electric & Gas Company's fossil units and South Carolina Generating Company's  
3 (GENCO) Williams Electric Generating Station (Williams Station) during the period  
4 February 1, 2005 through January 31, 2006.

5 **Q. PLEASE GIVE A SHORT DESCRIPTION OF SCE&G'S FOSSIL AND HYDRO**  
6 **ELECTRIC FACILITIES.**

7 A. SCE&G owns and operates ten (10) coal fired fossil fuel units (2,495 Mw), eight (8)  
8 combined cycle gas turbine/steam generator units (gas/oil fired, 1,354 Mw), eighteen  
9 (18) peaking turbines (365 Mw), four (4) hydroelectric generating plants (238 Mw), and  
10 one Pump Storage Facility (576 Mw). The total net non-nuclear summer generating  
11 capability rating of these facilities is 5,028 megawatts.

12 **Q. PLEASE EXPLAIN TO THE COMMISSION GENCO AND ITS RELATIONSHIP**  
13 **TO SCE&G.**

14 A. GENCO was incorporated October 1, 1984, as a SCANA subsidiary. GENCO owns the  
15 Williams Station. GENCO sells to SCE&G the entire capacity and output from the  
16 Williams Station under a Unit Power Sales Agreement approved by the Federal Energy  
17 Regulatory Commission. Hereafter when I refer to SCE&G's fossil steam plants, I  
18 include GENCO.

19 **Q. HOW MUCH ELECTRICITY WAS GENERATED BY SCE&G IN THE**  
20 **TWELVE MONTH REVIEW PERIOD?**

21 A. In the review period, SCE&G generated 26,319,200 megawatt hours of energy. Of this  
22 energy, the fossil steam plants generated 69%, the combined cycle units generated 7%,  
23 the gas peaking turbines and hydro facilities generated 5%, and the nuclear plant  
24 generated 19%. Exhibit No. \_\_\_\_ (GG-1) provides a graphic display of how the  
25 generation met this review period's energy demand.

26 **Q. PLEASE SUMMARIZE THE PERFORMANCE OF THE FOSSIL UNITS.**

1 A. Overall, SCE&G's fossil units have operated efficiently and dependably in the twelve  
2 (12) month period of February 1, 2005 through January 31, 2006.

3 Our fossil units have operated better than the North American Electric Reliability  
4 Council ("NERC") national 5 year (2000-2004) average for forced outage rates and with  
5 several units receiving national recognition for their excellent heat rates. These  
6 measures will be covered later in my testimony.

7 **Q. PLEASE DISCUSS SCE&G'S PLANNED OUTAGES FOR THE PERIOD UNDER**  
8 **REVIEW.**

9 A. Major Maintenance outages were scheduled and conducted at the Cope, Urquhart #3 and  
10 Canadys #3 units.

11 The Cope outage consisted of the first major maintenance inspection of the main turbine  
12 components and a robotic inspection of the generator unit. During the outage, we also  
13 inspected all major plant equipment and initiated repairs where necessary to ensure the  
14 continued reliability of the Cope Unit. We performed a major boiler inspection which  
15 revealed a need to replace portions of the burner-affected zone tubing and several burner  
16 components. We also installed adjustable over-fire air tips that should help reduce or  
17 alleviate the water wall tube wastage issues. We performed extensive maintenance and  
18 repairs on the Cope scrubber and bag house ducting. We also performed a major  
19 inspection and repaired sealing faces in the Cope air pre-heaters. The Cope outage  
20 finished ahead of schedule and resulted in improving the overall unit output by 10  
21 Megawatts net.

22 Urquhart #3 unit was taken off line during the Spring of 2005 to install a "Separated  
23 Over Fired Air System" (SOFA) to help further reduce Nitric Oxide emissions. In  
24 addition to the SOFA work, we performed the following activities: replaced the unit's  
25 coal piping, refurbished the coal mills, installed new mill exhausters, and installed new  
26 7<sup>th</sup> and 11<sup>th</sup> feed water heaters. We also inspected and repaired the main generator high

1 voltage bushings, and rewired and upgraded the boiler soot blowing system. The unit  
2 was returned to service on schedule.

3 Canadys #3 was taken off line on September 10, 2005 to conduct a major maintenance  
4 outage on the Low Pressure Turbine and the generator. This was standard life-cycle  
5 maintenance on these plant components and had been scheduled for some time. During  
6 the Canadys #3 outage, we also replaced the main steam stop valves, and added new  
7 hydraulic controls to the stop valves, turbine, and turbine-driven feed pump. We also  
8 demolished the boiler wind box, removed the old burners and igniters and installed new  
9 Low Nox Control Burners, Igniters and Scanners. These changes resulted in the  
10 replacement of worn out or outdated equipment that had been causing forced outages and  
11 delays in startup. In addition, during this outage we inspected and repaired the boiler  
12 stack.

13 The Canadys #3 outage began on September 10, 2005 and was scheduled to end on  
14 November 19, 2005. The outage was extended, however, when nondestructive testing on  
15 the turbine blades revealed chemical deposits in a critical zone. These deposits resulted  
16 from normal operations of a unit that has now been in service for nearly 40 years. The  
17 Original Equipment Manufacturer evaluated the Low Pressure Turbine Rotor condition  
18 and determined that they could not predict whether the rotor would survive operation  
19 until the next major maintenance inspection. Therefore, the decision was made to extend  
20 the outage and conduct the extensive rotor and blade repairs. To correct this problem,  
21 the low pressure rotor was transported to the Original Equipment Manufacturer's shop  
22 for removal of the blades and machining of the rotor. The problems were fully corrected  
23 and the unit was returned to service on December 20, 2005. Since that time, we have  
24 been performing various performance tests to validate the new controls installed on the  
25 unit and to determine the performance of the new burner and igniter assemblies.

1    **Q.     WHAT HAS BEEN SCE&G'S SYSTEM FORCED OUTAGE RATE FOR THE**  
2       **PERIOD UNDER REVIEW?**

3    A.    SCE&G experienced a system forced outage rate on its fossil fueled steam units of 3.66  
4           % in the review period. "Forced outage rate" is the percentage of the total hours that  
5           generating units are forced out of service (for various reasons) compared with the total  
6           hours in service for a period. The North American Electric Reliability Council  
7           ("NERC") national 5 year (2000-2004) average for forced outage rate for similarly sized  
8           units is 4.94%.

9    **Q.     PLEASE DISCUSS THE AVAILABILITY OF SCE&G'S FOSSIL PLANTS**  
10       **DURING THE REVIEW PERIOD.**

11   A.    SCE&G had an availability of its fossil plants of 86.37% for the review period.  
12          Availability is a measure of the actual hours that the generation units are available  
13          (overall readiness to provide electricity) divided by the total hours in the 12 twelve-  
14          month review period. Availability is not affected by how the unit is dispatched or by the  
15          demand from the system when connected to the grid. However, it is impacted by the  
16          planned and maintenance shutdown hours. The North American Electric Reliability  
17          Council ("NERC") national 5 year (2000-2004) average for availability from similar  
18          sized pulverized coal fired units was 87.45%. SCE&G's availability was slightly lower  
19          than the NERC national 5-year average due to the timing and duration of the normal  
20          planned and maintenance shutdown hours associated with equipment maintenance  
21          outages and environmental compliance investments. However, during the peak period,  
22          June 1, 2005 through September 30, 2005, SCE&G operated at an availability of 95.68%.

23   **Q.     WHAT HAS BEEN THE HEAT RATE OF THE FOSSIL UNITS DURING THE**  
24       **REVIEW PERIOD?**

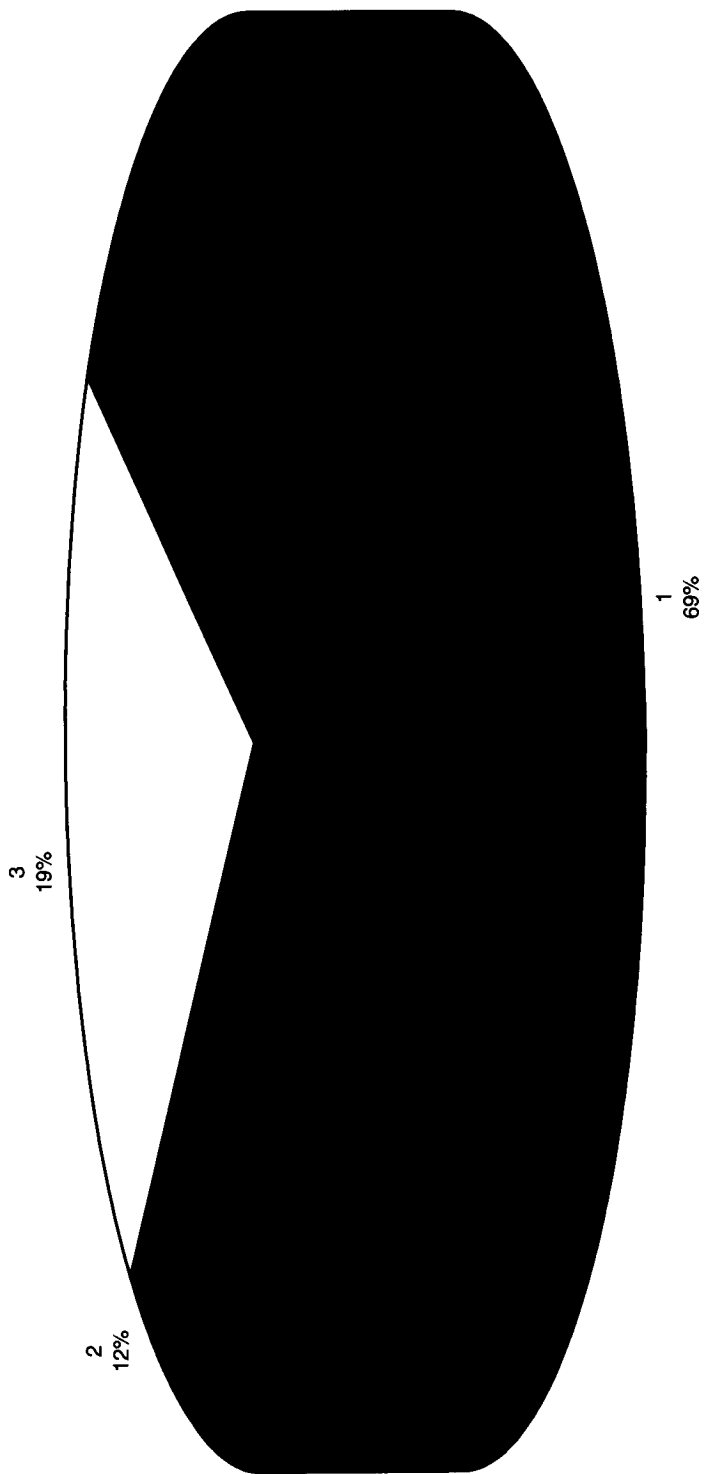
1     A.     Heat rate is a way to measure thermal efficiency of a power plant fuel cycle. It is the  
2           number of British Thermal Units (Btu) of fuel required to generate one (1) kilowatt-hour  
3           (kWh) of electricity.

4           The combined steam unit's heat rate for the period February 1, 2005 through January 31,  
5           2006 is 9658 Btu/kWh. Cope Station had the best heat rate in our system at 9226  
6           Btu/kWh followed by Williams Station at 9503 Btu/kWh. In the November 2005 issue  
7           of *Electric Light & Power*, SCE&G was recognized by having three of its plants listed in  
8           the top 20 most energy efficient coal fired plants in the nation for 2004. Cope Station  
9           ranked 7th at 9340 Btu/kWh, McMeekin was ranked 11<sup>th</sup> at 9424 Btu/kWh, and Williams  
10          Station ranked 15<sup>th</sup> at 9592 Btu/kWh.

11    Q.     **DOES THIS CONCLUDE YOUR TESTIMONY?**

12    A.     Yes.

## South Carolina Electric & Gas 2005 Generation Mix



■ 1 Coal  
■ 2 Hydro & Gas Turbines  
□ 3 Nuclear